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CHRONICLES AND PITFALLS

By OTTO W. WINTER, B. I. E. '29

IT IS hardly befitting that I attempt any sort of an autobiography at this tender young age. I would much prefer to write something that, if read and if remembered and if applied, could be of some benefit to young prospective engineers and especially to industrial engineers. Giving you some of the lessons I have learned by unfortunate but unprofitable and apparently necessary experience seems to be a good way of accomplishing this purpose.

Now I am quite aware of the futility of the "don't" approach but I am also aware of the virtually as great futility of the "do" approach. Experience keeps a dear school for fools such as I. I hope that I've been graduated. At least I've passed a few courses. If, however, you can avoid some of this type of "post-graduate" work and spend your time and energy on more advanced training, then—more power to you!

By way of historical introduction, the writer graduated with a bachelor's degree in Industrial Engineering, class of 1929. Entry in college was after four years in a trades high school and considerable shop experience as a machinist and toolmaker. I mention this shop experience because not to do so would be overlooking a fact of importance. Get all the shop experience you can reasonably get *before* entering college and during vacations. You will find it very handy in meeting expenses during the pursuit of a "sheepskin" and also in getting more applied value out of your college studies. Furthermore, it will be a decided factor in the grades you make, shop courses you can drop, and most of all, the kind of a job you land at graduation.

Being so blessed, I managed to get an excellent job with the Cincinnati Milling Machine and Cincinnati Grinders, Inc. in their special equipment department. I might add for factual correctness that I spent the summer between junior and senior years with this company on the same work. This work consisted of designing and estimating costs and production on special machine tool applications wherein the entire equipment

was engineered for the specific job in question and would cover the machine proper and all fixtures, cutting tools, etc., required. It was an extremely valuable experience but it did require the above mentioned background of shop experience.

As extra-curricular work for evenings and week-ends there were many special projects, investigations, market analysis and promotional work that the sales manager needed done. It was a lucky break to get such work, even without compensation, because the experience gained was compensation enough, especially since my ultimate interest lay in sales engineering work. After a couple years of this work I was sent to Detroit as a sales engineer to work with the dealer in that territory and eventually was stationed in the direct Detroit office of the firm.

After a year or two in this capacity I was the fortunate one selected to be sent to Russia as a consulting engineer to the Soviet Machine Tool Trust (Stankoobjedjinenie) and Cutting Tool Trust (Stankoinstrument). This was a rare experience in technical, human, social and political problems. During this sojourn and as evening extra curricular work, the writer designed and developed the present Russian Milling Cutter Standards. Engaged for this project were some thirty young Russian draftsmen, the work covered 6 months of night work and involved complete designs of both solid and inserted tooth types of cutters. The regular day time assignment consisted of helping the Russians build some of their own machine tools and also attending to Cincinnati's interests.

At the expiration of this Russian contract, work in Detroit was resumed for the Cincinnati firm. This time it consisted principally of laying out complete production lines for automobile engines, etc., in collaboration with other machine tool builders. The work included cost and production estimating, design, and similar problems.

Shortly after this I found it difficult to refuse an

offer from Whitman & Barnes, Inc., of Detroit. The job consisted of organizing, engineering, and managing a cutter and special tool division. It was a solo assignment in character. Starting from scratch and hiring an entire personnel, and designing an entirely new line of tools (milling cutters), arranging and selecting equipment, establishing methods and standards, cost accounting, production control, wage incentive systems, arranging all sales promotion, etc. The experience gain in management problems was priceless.

After two years with Whitman & Barnes an opportunity to combine machine manufacturing with management offered itself with the Kent-Owens Machine Co. of Toledo, manufacturers of machine tools and special machinery. In the position of Industrial Engineer the task was to organize and manage a system of production control and tool control and the respective departments involved. In addition, the job included a consulting capacity in the design and development of some new products.

A year or so later as a result of the recommendations of some valued friends an irresistible offer resulted in my present connection. The title is factory manager; the firm, The Columbus McKinnon Chain Corp. and Chisholm-Moore Hoist Corp. of Tonawanda, N. Y. The job covers all manufacturing, engineering, production, personnel, and like functions. "Come up and see me sometime", we do a lot of interesting things in the manufacture of chain of all kinds, including tire chains, hand and electric hoists and trolleys and hand and electric powered cranes.

So much for the "Horatio Alger" stuff. Now that you know how and where I've been spending my time since graduation I trust that you might be in a somewhat receptive state of mind. The reason for this sarcasm is that I clearly recall what a cocky upstart I was 10 years ago. The same can be said for a large number of my classmates at that time. Fired with energy and ambition with the draft wide open and the governor removed.

Confessing, I'll admit that the average engineering graduate is perhaps not the problem child that I was (and maybe still am) but if he doesn't run into some of the same problems and pull some of the same boners, then he is phenomenal or the world has changed a great deal. My personal observation is that neither the world nor recent graduates have changed much, if at all. There will be no attempt to cover in the order of importance, but everything that I write here I believe is important.

First of all, don't let your ambition run wild with you. I did on several occasions and missed some good bets. Ambition is an admirable quality. It is also a powerful "hypo". In proper doses, it is indispensable; too much may be fatal to a career. It has been said "There are a lot of good cement mixers in college." Fortunately in the engineering college they usually find out where they stand before it is too late.

Now if you are destined to be a cement mixer, relax

and enjoy it. But if you think you can carve a place in the sun, carve it. You can get anything you want, if you work hard and long enough on it. Everybody can't be a vice-president and it is a good thing too. Someone has to mix the cement. Set yourself a goal and go after it. Really it is as much of a thrill climbing as it is looking down from the summit (so they tell me) at any rate, there's no better fun than fighting for something you want.

It takes push, not pull. However, if the boss has an unmarried daughter, don't be a sap and waste time on the girls in the office! Set yourself a goal and set a schedule for arriving at it. Don't concern yourself if fortunate circumstances put you ahead of schedule but don't "mushroom", the relapse may be bad. If you fall behind schedule, take stock of yourself first, maybe you set the pace too fast to follow, don't let your ambition exceed your capabilities. That's one form of failure and a dismal one too. Stay within your scope and you'll taste real success.

Don't expect to stay with the first firm by which you are employed after graduation unless it looks very good and nothing better shows up. When it does tho, don't be intrigued by the mere prospect of a change. It's all wrong, however, to hitch a polo pony to a garbage wagon, so if you're with an outfit that is pigeonholing you, get out. Don't stay with a concern that requires you to have one leg in the grave before you are considered worthy of a responsible position. On the other hand, beware of the fly-by-nights and the smooth talkers.

Now no man is really worth much unless his experience is broad. Of course, some never acquire experience; poor unfortunates, they're just cheating the undertaker. It's good to get fired or demoted or passed by a few times. For some men a kick in the pants of this sort is necessary to bring them to their senses. Experience spiced with failure is the strongest dose handed out in that school.

When you think you deserve a promotion don't ask for it. Few companies are interested in you personally, unless you're doing okay with the daughter of the boss. The firm is only interested in you to the extent you are capable of helping it thrive or survive. If you think you "have something on the ball", if you think you can fill a need, do a better job someplace than is being done or clean up some existing mess, drive that point home. Don't ever make the foolish mistake of placing your own interests ahead of that of the firm's. You won't get to first base and what is more, who do you think you are anyway? Your value on the job is in direct proportion to what you can give the job.

Don't be afraid to blow your own horn, however. No one else will furnish the wind unless they are going to benefit by it or if unless you are not a competitor in any way. A real friend is the fellow who will recommend you for the job he'd like to have. If you

must blow your own horn, however, use a mute, stick to facts and be sure of your grounds.

Make your job your hobby. Some will argue this point. If you love your job, you'll find plenty about it to occupy all of your time and interest if you wish. Pity, rather than censor, the poor neurotic that simply must get away and "do something else for relaxation". There is nothing wrong with relaxation, and it is necessary on occasion if you "can't take it". However, if you find an avocation indispensable, make a business of it. It has been said by wise men, wiser than I ever will be, "a success is a man who makes his living at his hobby". I do not advocate narrowness nor is that intended. As a professional man, the broad aspects of your profession should offer ample opportunity for diversion. There was never a nervous breakdown where a man was in love with his job and was capable of handling it.

Lose the desire for knowledge and you've lost the greatest treasure life holds for you. If you think cramming and home study finish on commencement day you had better keep that ambition schedule at a very low scale. A hunger for knowledge should be the cornerstone of your entire career. Without that, it hardly deserves the term "career". No matter what happens to you, if you have that desire well rooted, it will pull you thru crisis after crisis. This may sound far-fetched but I am sincerely talking from experience. As an engineer, you are paid largely for what you know and hence for what you can do as well as what you do do. The term commencement means beginning. The sooner you realize that, the fewer years of your life you will waste.

Education is not an accomplishment. It is merely a tool for accomplishment. Don't let that piece of parchment that says something about your being an engineer become a millstone. There are thousands of men in the engineering profession, who were never on a campus, that have forgotten more than what you know of applicable value. The mental gymnastics and practical smatterings and fundamental groundwork your four undergraduate years have given you will need a good five years of careful nurturing to blossom into something of real professional status.

An M. D. studies 8 years and is still a cub. Since when did the medical profession call for more brains and training than the engineering profession? It does not, never did, and never will. If the patient dies, there are plenty of alibies but if the bridge washes away, it proves the slide rule is a curse and you stick out like a sore thumb.

Look out for the quacks and look out for the highbrows—and don't be either. Both types of engineers, often self-styled as an engineer, are a disgrace to the profession. They are both bluffing. You can tell when a man knows his stuff. He invariably can explain in simple terms to the most uninitiated. Either quack or

highbrow will try to impress you with the complexity of something. Avoid them and avoid jeopardizing your career and reputation by being like them.

A very essential tool in the application of an engineering education is a set of notes. For 15 years, I have religiously kept notes, clippings and articles from technical journals, papers, catalogs, etc., filed in a systematic arrangement which enables me to immediately dig up all I have read or run across on any given subject covered. This has been a sort of hobby and a most profitable and indispensable one. I have heard that an engineer's education does not require that he know anything but that he know where to find it. There are some that will disagree with this even to the extent that memorizing the derivation of formulae is essential engineering education. It is good mental gymnastics and affords a feeling of satisfaction that the formula is correct after all, this and nothing more. If you are going to practice your profession on a desert isle all right, but if you think you can remember it all, you are destined for disappointment. You will in fact be greatly surprised at the things that you will forget in a year's time. A still greater and by far more pleasant surprise however is the one that awaits you when referring to some old notes (properly taken) or textbook (properly underscored and subtitled). The flood of recollections prompted by the stimulus of once familiar material is indeed gratifying.

Don't make the mistake of selling your old textbooks. Use them as a nucleus in building up a real library in conjunction with a system of notes. A budget of at least \$100 per year for this is money well invested.

The world is full of people. If you don't know how to get along with them you had better start learning now before something happens. It's rather difficult to avoid them and up to now your contacts have been essentially pleasant in character. Maybe you have had a taste of fraternity or campus politics. If so you are fortunate, because what you learned has cost you nothing to what it would have cost if learned later and under more important circumstances. One of the greatest failings in college curricula today is that the vital subject of "how to get along in the world" is an extra curricular study or a post graduate disappointment. A major part of the oft expressed process of "knocking off the rough spots" are really lessons in human behavior.

First of all, you can't afford to have an enemy. Life is hard enough without this sort of obstacle. Make up your mind you're not going to have an enemy and you probably won't have one. This may sound difficult but even competitors can be friends, it's an old American custom. Let your enemy know you like him and you've got him licked to a frazzle. Let your ideal be the square deal. Play your cards face up or get out of the game. There is nothing that hurts more and is remembered longer than a knife in the back. Keep the

cards out of your sleeves. There is only one fellow you can fool—yourself.

Create and live an honest, open-heart, straight thinking, clear-eyed attitude toward your fellow men. There is something good in everyone. Learn and practice the art of sincere flattery. Take a genuine interest in people and start out to find their good points. Get down to earth and know the man that toils. There are a lot of interesting and important people in income brackets lower than yours. Remember dignity is often only a sham. Don't set yourself on a perch, someone will delight in knocking you off it and they will, too!

Be fair. Someday you are going to act as judge on important matters. It is never too early to start building a reputation for impartiality and honesty. Don't make any promises you can't keep. This is another excellent reputation to be working on. Look out for arguments. If you like to argue, argue with yourself. No argument ever changed a man's mind. Remember the other fellow thinks he is right too. Try to cultivate a courteous manner of discussing a problem, listen to *all* the opposition's points and calmly stay with yours until proven wrong. Use the Benjamin Franklin or balance sheet method of reasoning, i.e. line up the pros and cons side by side, and impartially compare one to the other. Don't try to bluff or outshout, in fact, don't raise your voice even if shouted at, don't be bullheaded and don't assume from the start that the other fellow is crazy. I've tried them all, they won't work. Remember, only mother will say "Everybody in the parade is out of step but my Johnnie". Learn to control that youthful temper. Never waste anger—use it. Keep your forceful language for special occasions.

Keep yourself in the pink of condition. If you're always able to lick your weight in wildcats you'll never have to lick any. Remember hard boiled eggs are usually only poached. Your mental, moral, nervous, and spiritual health are in direct proportion to your physical health. Learn the value of a smile. Even if you do have a hangover or a stomach ache, beat the other fellow to that smile, he may have a hangover too (or it may be the boss with a stomach ache). Cheery "good mornings" are cheap but they do wonders for both giver and receiver. You're only on this earth a little while so why not spread a little happiness while you have a chance. Above all, be sincere. Sincerity atones a multitude of evils.

You, perhaps, feel that your intelligence has been roundly insulted. Perhaps 10 young men out of a hundred will read sagacious recommendations on how to live. I was one of that ten. Out of that ten maybe one will remember and apply those things he read. I was not one of these. I'm not going to entertain you with any more self-criticism except to say that I used to read a lot of this high sounding stuff and then turned right around and promptly proceeded to forget it all. The kicks in the pants I have taken are covered in this little sermon. It may sound like old stuff or hokey to you but try and live otherwise. Some people are. I'll never forget how embarrassing it was several times, forgetting how wrong it is to bawl a man out and how important it is to always inquire before attacking, it was necessary to apologize to the poor cuss involved because he was right and I was wrong, even if I was the boss.